

Astronauts in Cosmic Quest

Women astronauts, experts crucial in U.S. space effort

By CAROLEE WALKER

While other girls her age were mixing flour, butter, eggs and sugar to make cookies, pretending to be pioneers of the American West, astronaut Shannon Lucid was thrilled in the fourth grade when she discovered that one could mix gases and make water. Lucid, too, dreamed of being a pioneer—just not in the kitchen.

Undaunted by obstacles facing girls and women prior to the 1960s in America, Lucid set her sights on space exploration.

NASA, the American space agency, invited women to qualify for space travel in 1978, and Lucid was among the first six women to join NASA's astronaut program. The others were Rhea Seddon, Kathryn Sullivan, Judith Resnik, Sally Ride and Anna Fisher. In 1983, Ride became the first American woman in space; Sullivan was the first woman to walk in space.

Lucid says she was usually the only female student in her chemistry classes in college and graduate school. In eighth grade, when space exploration was in its infancy, she wrote about her future career as a rocket scientist. Her teacher felt she had not fulfilled the assignment because the essay was not supposed to be science fiction.

Today, 33 percent of all NASA employees—and 19 percent of the agency's scientists and engineers—are women. In 1998, for the first time in the history of spaceflight, the launch commentator (Lisa Malone), the ascent commentator (Eileen Hawley), the flight director (Linda Hamm) and

the communicator between Mission Control and the crew, known as the CapCom (Susan Still), were all female. Nearly two-thirds of the flight control team for NASA's space shuttle launch that year was female.

A veteran of five space flights, logging 223 days in space, Lucid holds the international record for the most flight hours in orbit by any American, and any woman in the world. During her 188 days on the Russian space station *Mir* in 1996, Lucid said she "never got tired of looking out the window and looking at our Earth. It was just so beautiful."

In 1998 she wrote in *Scientific American* that she viewed the *Mir* mission as the perfect opportunity to combine two of her passions: flying airplanes and working in laboratories. Lucid received her pilot's license when she was 20. Before she became an astronaut she was a biochemist at the University of Oklahoma. Lucid's three children were grown by the time she worked on *Mir*. Lucid was awarded the Congressional Space Medal of Honor in 1996.

In 1992, Mae C. Jemison, a physician, was the first black woman to fly in space when she joined the space shuttle *Endeavor* as science mission



Shannon Lucid works out on the treadmill during her six-month stay on the Russian space station Mir in 1996.

specialist, conducting experiments in life sciences, material sciences and bone cell research.

Lieutenant Colonel Eileen Collins, who was the first woman to pilot a space shuttle in 1995, entered the NASA space program from the U.S. Air Force.

Thirty years after astronaut Neil Armstrong became the first man to step on the moon, Collins became the first woman to command a space shuttle in 1999.

Then-NASA Administrator Daniel S. Goldin, who initiated changes to transform America's aeronautics and space program to include training and education of women, said of Collins' mission, "This is great, but it is not enough."

"I'm glad that I've had the opportunity to be part of bringing those barriers down," Collins was quoted as saying. "I'm honored to be the

first woman to have an opportunity to command the shuttle."

Since then, women have assumed prominent roles in the space program. For example, NASA's Countdown Status Briefing in June featured Debbie Hahn, payload manager, and Kathy Winters, shuttle weather officer.

Sunita L. Williams, NASA's second Indian American astronaut, has been assigned as flight engineer aboard the International Space Station this December.

In addition to the achievements and successes of women in the U.S. space program, there have been tragedies. Two women died when space shuttle *Challenger* exploded shortly after take-off on January 28, 1986—mission specialist Judith Resnik and schoolteacher Christa McAuliffe. Two women—mission specialists Kalpana Chawla and Laurel Blair Salton Clark—were aboard space shuttle *Columbia* when it broke up on re-entering the Earth's atmosphere on February 1, 2003. □

Eileen Collins enters log notes at the commander's station on Columbia's flight deck in 1999.



Carolee Walker is a staff writer for Washington File, a product of the Bureau of International Information Programs, U.S. Department of State (<http://usinfo.state.gov>).

Courtesy, NASA Headquarters—Greatest Images of NASA (NASA-HQ-GRIN)

SPACE